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113

A SUMMER CONSERVATION EDUCATION PROGRAM
FOR INTERMEDIATE GRADE CHILDREN

A Thesis
Presented to
the Graduate Faculty
Central Washington State College

In Partial Fulfillment
of the Requirements for the Degree
Master of Education

by
Alfred John Palm
July, 1968

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TABLE OF CONTENTS

CHAPTER	PAGE
I. INTRODUCTION	1
The Problem	2
Statement of the problem	2
Importance of the study	2
Limitations of the study	3
Definitions of Terms Used	3
Conservation	3
School camps	4
Social values	4
Summary	4
Overview	4
II. REVIEW OF THE LITERATURE	6
Literature on the Value and Need for	
Conservation	6
Literature on the Need for Conservation	
Education	11
Literature on the Value of Camping	13
III. A SUMMER CONSERVATION EDUCATION PROGRAM	
FOR INTERMEDIATE GRADE CHILDREN	19
Introduction	19

CHAPTER

PAGE

Day I. Introduction to Conservation	21
Day II. Soil: What is Soil and Why is it Important?	24
Day III. Soil: Conservation of Soil	27
Day IV. Water: How is Water Important to Us?	29
Day V. Water: Where does Water Come From?	31
Day VI. Water: Water Problems and Conservation	33
Day VII. Forests: Why are Forests Important?	35
Day VIII. Forests: Fieldtrip to Lumber Mill and Plywood Factory	37
Day IX. Forests: How a Tree Grows	39
Day X. Forests: Tree and Plant Identification	41
Day XI. Forests: Forest Problems and Conservation Measures	43
Day XII. Wildlife: Wildlife Needs and Problems	45
Day XIII. Wildlife: Why is Wildlife Important to Us?	47

CHAPTER	PAGE
Day XIV. Wildlife: Wildlife	
Conservation	49
Day XV. Concluding Classroom Day	51
Day I. Camp: Wildlife	53
Day II. Camp: Water	54
Day III. Camp: Soil	55
Day IV. Camp: Forests	56
Day V. Camp: Evaluation	58
IV. SUMMARY AND CONCLUSIONS	59
Summary	59
Conclusions.	62
BIBLIOGRAPHY	65

CHAPTER I

INTRODUCTION

Our natural resources are the base on which life itself depends. Yet, as will be pointed out in the next chapter, man has done a great deal to destroy these same resources. The federal government has passed many laws in recent years to implement better conservational practices, but the full support and understanding of all people will be required if those laws are to be effective. Many experts feel this can only be accomplished through conservation education, with the best source of such education being the schools. There are many schools which carry on conservation education activities, but there are also large segments of our population that are still being deprived of this knowledge.

Literature the writer has reviewed clearly indicates that the most effective program in conservation education should include school camping experiences. Because so few schools conduct camping programs, the only opportunities available for group camping are those offered by churches or private organizations. Many times they are expensive. Children deprived of an educational camping experience often grow into adulthood without any notion as to the value of learning conservation and outdoor skills. The familiarity

with and knowledge of our natural environment should be the birthright of every child born in the United States.

I. THE PROBLEM

Statement of the problem. The writer will develop a three-week program of class study in the areas of conservation of our outdoor natural resources and recommended camping skills. The three-week class session will be followed with a one-week camping program. During the course of this study, the major objective will be to design a program of conservation for intermediate school students. The study should also present some of the possible social values to be gained from such a program.

Importance of the study. The time spent in teaching conservation is of little value unless the teaching is translated into action. For example, it is of no value to teach water pollution control if, on the week-end, children go out with their parents and pollute the lakes and streams with their litter. Conservation teaching must make such an impression that the students will want to put forth their best efforts to be good conservationists. The importance of this study, therefore, is to plan and develop a program that will be exciting and stimulating as well as informative.

It is also felt that by putting this program into

practice, the students will gain socially beside increasing their knowledge of conservation and acquiring skills in dealing with outdoor living.

Limitations of the study. This study of conservation will be limited to the areas of soil, water, forestry, and wildlife which make up the substance of the program developed in Chapter III. Such limitations are not intended to infer that other areas in conservation such as air, hydro-electric power, and mineral resources are relatively unimportant; but the areas most readily accessible for children to experience and do something about seem to the writer to be the four previously mentioned. The literature available also seems to emphasize those same four areas.

Other limitations will include no attempt at investigating the financial or administrative problems in the program. Neither will it be set up for a certain campsite. The number of students involved would be of no importance; with an adequate adult staff, a large number of children could participate as easily as a small number.

II. DEFINITIONS OF TERMS USED

Conservation. The generally accepted definition of conservation shall be the one used in this thesis, that being the protection and wise use of our outdoor natural resources to make them fully productive.

School camps. The term "school camps" shall be interpreted throughout this study as an outdoor group camping program designed for public schools and operated by them.

Social values. "Social values" shall be interpreted to mean the interaction of children among themselves and with teachers, resulting in constructive changes in attitudes concerning responsibilities toward themselves and others and improvement in group behavior.

III. SUMMARY

In this chapter an endeavor has been made to justify the need for making a study of conservation education. The importance of such a study should help to point out why it is essential that educators need to form an effective program of conservation education. The limitations of the study have been explained in order to keep the program in proper perspective. Certain terms have been defined to eliminate ambiguity and help the reader interpret the study as it is intended.

IV. OVERVIEW

In Chapter II the writer will give a general survey of the literature available in the field of conservation and school camping. It will cover the value and need for

conservation, the need for conservation education, and the value and need for school camping.

A program for three weeks of concentrated study in the area of conservation followed by one week of camping is presented in Chapter III. This program was created by the writer with great care taken to supply varied, stimulating, and meaningful learning activities for teaching the listed objectives.

In the final chapter, the study will be summarized and the writer will present his conclusions and recommendations.

CHAPTER II

REVIEW OF THE LITERATURE

The writer presented in this chapter a general survey of the literature available in the area of conservation and school camping so that possibly a model conservation education and school camping program could be ascertained. Numerous writers have expressed concern that the public in general and the school to be specific are not meeting the challenge of good conservation practices. The researcher has reported these criticisms and presented their recommendations as to what the schools could do in this area.

LITERATURE ON THE VALUE AND NEED FOR CONSERVATION

The United States is confronted with a serious problem in trying to conserve our natural resources. When pioneers first settled this land, the great forests and vast wilderness were an obstacle to overcome. To them the forests and fertile soil must have seemed inexhaustible. The late Sen. Richard Neuberger of Oregon made the following statement in his pamphlet, "Our Natural Resources--and Their Conservation":

Few homesteaders or loggers ever troubled to remember that a few mature trees, left out of each grove might drop cones and seeds for another timber

harvest, generations hence. The motto was "cut out and get out." Weren't there practically countless trees farther west? And what if the plains, denied their anchoring cover of grasses, were beginning to blow off into dust storms? Didn't a thousand miles of wide open spaces still sprawl between the prairie and salt water? (27:4)

Forests were cleared and land was put under cultivation. Erosion began immediately. This seemed to be the natural order of things, for the resources seemed limitless; the land stretched so far that it took two hundred years for the chain of settlers to cross it. The land, the forests, and wildlife were a source of wealth and they were plundered without regard for future generations. The South, with its repeated one-crop systems of tobacco and cotton, soon wore out its soil. The western Great Plains were turned into a "dust bowl" when the fine grass was removed and put under cultivation.

There were men among our early ancestors who saw the need for conservation, however. William Penn made provisions for conserving the forest land of Pennsylvania. His regulations for his colony provided that for every four acres of forest removed, one should be left so that Pennsylvania might have woods forever (42:19). President John Quincy Adams set aside a national reserve of live oak forest in 1828 ". . . to ensure timber for the ships of our navy." (42:20) However, the first big step toward conservation began in 1872 when Yellowstone National Park was established

(42:21). Many laws have been passed since that time to effect better use of our national resources. Now that we have areas protected by conservation laws, it is only through education that they can be made effective.

In the book, Elementary School Science, Blough points out in the unit on "Conservation of Our Resources" that there are "two Americas." The first is the America we inherited. Then there is the other America, the America we made (5:334). The latter has factories spewing out soot and waste to pollute the air. Rivers are used to catch every imaginable type of waste. Land is scarred by erosion of soil and vast timber has been burned by carelessness. Many species of animals have been made nearly or totally extinct.

A situation regarding our water resources is described by The Conservation Foundation in a report dated April 22, 1968:

"You'll wonder where the water went if you fill the Bay with sediment"--that's the message some San Francisco area residents sent their state legislators in 1965. . . . From an area of some 680 square miles in 1850 the Bay was down to about 400 square miles in 1965 as a result of filling for wharves, airports, roads, homes, office buildings, factories and other developments. . . . If all the relatively shallow parts of the Bay were to be filled, the Bay would consist of only 187 square miles, in some instances, it would be little more than a river. (13:6-7)

In an article written by John Bird for "The Saturday Evening Post," the need for conservation is stressed by the description of the terrible state of pollution our waters

are in (4:30).

Within a few generations we have fouled and degraded our beautiful waters. With destructive ignorance and vandalistic abandon we have clogged the capillaries and arteries of our land with filth. Perhaps we were lulled in the early days by reassuring platitudes that "running water purifies itself." Perhaps we simply didn't care. In any case we have used our creeks, rivers and lakes-- the same ones from which we draw our drinking water-- as handy cheap sewers to carry away every imaginable kind of waste.

There are numerous descriptions of areas that have been ruined by soil erosion. In Dorothy Hogner's book, she makes the following graphic statement about the Great Dust Bowl of Oklahoma: "It has been estimated that two hundred to three hundred million tons of soil blew away from the Great Dust Bowl in the year 1934." (23:52-53)

Not only is there a need for soil conservation to prevent erosion, but also a way to promote good conservation practices in using the soil. Craig states:

In many regions the first farmers found a soil so rich with valuable minerals that the fertility seemed inexhaustible. It was the practice in many of these regions to plant a single crop year after year without using rotation or other methods of soil improvement. Sometimes this practice of farming has been called "mining the soil" since it tended to remove soil materials with little thought of the soil as a resource. Eventually this process will deplete any soil. (14:155)

The need for conservation of wildlife has been emphasized for many years. In a pamphlet by the World Wildlife Fund, it is noted that "more than 200 species of birds and mammals already have disappeared from the face of the earth, and still another 250 species are threatened

today. Many of these are in North America and on the danger list." (35:2)

There are many examples of how animals have been made nearly or totally extinct through lack of any conservation program. A good example of a poorly understood conservation need is narrated by Miss Hogner:

Martha, named after Martha Washington, was a bird of distinction. Anyone who visits the National Museum at Washington, D.C. may see her. There she sits, mounted in a glass case and as dead as the dodo bird, of which incidentally, she was a cousin. A card informs visitors that Martha is an adult female passenger pigeon, who died on September 1, 1914, at the age of twenty-nine years, at Cincinnati Zoological Garden. To insure safe arrival at her tomb, Martha's body was suspended in water and frozen. Thus preserved in a three hundred pound cake of ice, she had been shipped to the nation's capitol for study, and mounting. The most astounding fact about Martha is that she was the last of her race.

.....

It is often asked what happened to this common bird. Was there no effort made to save the species? An effort was made, much, much too late. Towards the end of the last century and during the first years of the twentieth, the few birds then remaining alive, that could be found, were captured. Attempts were made at Milwaukee, Chicago and Cincinnati to breed these remnants in captivity. The experiment failed. The last male died at Cincinnati about four years before Martha made her historic journey from that city to the National Museum, in the huge cake of ice. (23:11)

Although forestry conservation has been practiced for many years, it appears the job is inadequate.

The chief enemy of the forest is, of course, man. Our actions toward forests, as well as toward some of our other natural resources, is indeed, biting the hand that feed us. More than three-fourths of the original forest of the United States have been cut down. Every

year far more trees are cut down than are replaced. Either the rate of cutting must be reduced or the rate of replacement must be stepped up. (5:341)

It would appear that there is a very serious need for conservation in the areas just reviewed. In the next section, the writer will attempt to review the literature related to the recommendations of conservationists and the need for conservation education.

LITERATURE ON THE NEED FOR CONSERVATION EDUCATION

While reviewing the literature of conservation education, the writer was not concentrating on the programs underway by the federal government agencies or various other national organizations, such as the National Audubon Society. These programs are undoubtedly worthwhile and have useful objectives for "professional" conservationists; however, conservation is a program for everyone to participate in. Children and adults need to know what conservation is, how it affects them, and what they, as individuals can do for the program. Mr. Taylor feels very strongly about the individual's responsibility in regard to conservation:

In our kind of government we do not rely on a dictator to tell us when to get up and when to go to bed, what to eat, where to live, where to go, and even how to conserve our natural resources. Rather, we rely on the individual citizen, working by himself or through groups of likeminded persons, to educate himself and others to what should be done. It's up to him to

follow through to see that citizens translate desirable proposals into action. (37:5)

If one takes such individual responsibility seriously, he must become involved in conservation by protecting the resources through wise use as well as making those resources as completely productive as possible. After all, this is the ultimate goal of conservation education. (1:1)

Having established the cardinal reason for the necessity of conservation education, the writer went on to investigate how authorities felt about including conservation education in the school program. Since the regular school curriculum already includes subjects that are closely related to conservation, and since conservation education would require trained personnel and detailed planning for effective teaching, it would seem that the school is the natural unit to carry the task of educating children in ways of conservation. Some authorities feel that unless conservation education is included in the school program, there is little chance for urban children to recognize the significance of conservation.

In the booklet, Conservation Education, the following view is expressed:

Every year it becomes increasingly evident that conservation, like democracy is everybody's business. More important, it is now evident that we must teach our children to understand and make wise use of the world around them through a coordinated program of conservation education in every classroom. (12:4-5)

Still another authority, realizing how stimulating but complex the conservation education program is, reports the following statement:

Developing a conservation program in a school or classroom just doesn't happen. Like doing anything important, teaching conservation in the classroom takes sound planning and good preparation. Since conservation of natural resources deals with the things we depend upon for survival and life, it becomes an exciting subject to stress in school. Natural resources play an important and integral part in our lives. Because we eat, breathe and live with these resources it is important that our students understand their importance.(32:1)

The writer would therefore conclude that the best source for conservation education for all children is the school, because there is no other organization equipped to handle such a program for all children.

LITERATURE ON THE VALUE OF CAMPING

Camping offers a unique way of living which has many desirable characteristics. First of all, just the actual removing of one's self from the complex everyday city life to a camping area seems to help dissolve tensions. With emotional and psychological stresses being so prevalent in America's society today, any natural relaxation of those strains should be welcomed. Once in the camping environment, there are many opportunities for the individual to develop physically as well as forming new attitudes about his relationship with others. Donaldson states:

Camps help children to develop good muscles, healthy bodies and the skills of outdoor living. We used to think of these as perhaps the largest contribution of camping. But no matter how much importance is attached to them, they are overshadowed in importance by the general educational outcomes of a good camping program such as a keener sensing of the responsibilities of citizenship, concern for welfare of others, reverence in the presence of nature and of other human beings, and capacity for living and working with others in an artistic and wholesome fashion. (16:7)

Drury carries this idea further in his book by relating camping to educating people for a democratic society:

. . . Democracy is founded on the principle that man can and will think; education for living in a democratic society needs then to teach him how to think, give him facts on which to base his thinking, offer him unlimited opportunities to practice the skill, and then inspire him to feel the need for doing and the normal strength to do. Camping offers a superb opportunity for this type of education. It serves as a facility and a method. It offers the outdoors as a laboratory for acquiring the knowledge of the universe and of self-preservation; it presents opportunities for living with others and for the development of individual responsibility and it affords endless occasions for acquiring the skills of knowing, thinking, feeling and doing. (18:14)

Yet another argument supporting the value of camping is that the best place to study nature is in the outdoors where it can be observed firsthand. In this regard, Donaldson states:

Camp living is outdoor living. Nearness to nature and natural forces should be the essential physical characteristic of the educational camp. One of its prime objectives should be that of teaching about the natural environment in which man lives. Understanding that environment comes best from repeated, intimate contacts with it and the forces operating in it. Camps, by their very definition, must go to the environment in which they can function in a unique fashion. That environment is the outdoors--the fields, the lakes, the streams, the deserts--those rich resources which are the

birthright and common mooring of mankind. (16:43)

At this point, the writer investigated sources to find what special values school camping would have over other types of camps. There are a number of written materials that establish such an argument, such as the pamphlet written by the United States Office of Education listing the advantages of school camping as follows:

These experiences (school camping) can (1) help to bring about re-examination of current curriculum practices; (2) provide a natural and realistic environment for learning; (3) develop in simple direct fashion the practices of democratic living. (26:5)

Another value of school camping might be a closer relation between the school and parents. Too often, the parent feels as though he can have no part in the school program. With the modern school programs of today, many parents do not understand and therefore are unable to work with the school. Thus they have little interest other than seeing that the educational needs of their children are taken care of. In school camping, if the program is adequately introduced and the parents are informed, there is a chance for the parents to join in and be a part of the program. Many will have had camping experience and may be able to assist as resource people or counselors. The principle of learning through doing is understood by all and almost always universally accepted. Clarke makes the following statement regarding school and home relations:

The school camp makes it possible to establish more effective co-operation between home and school. Having entrusted the entire care of their children to the school camp for a few days, parents are vitally interested both in the procedure and in the outcome. They are pleased that their children usually return home in better health than when they left. Children's gains in co-operation, responsibility and health habits make parents feel that the school is helping to solve the difficult problems of parenthood. (9:133)

Value in school camping also is evident in the fact that children see each other in a different light. Many times children have contact with one another only in the classroom situation and during the brief recess periods. Not always being neighbors, they have very little social contact. Through school camping, children would be closer to each other, become more dependent on each other for co-operating in all facets of living, and develop mutual respect. Teachers can also improve teacher-pupil relations through the camping situation as pointed out by Clarke after making a study of Camp Oxyamaca, the San Diego school camp:

The body of evidence is sufficient to warrant the conclusion that the foregoing gains are extraordinarily large in proportion to the duration of the camping trip. Two reasons for the efficacy of camping education are most evident: First, the children are highly, but constructively, stimulated by the camp environment and hence are highly motivated toward learning and toward constructive personality changes. Second, their camping experiences are part of the orderly sequence of their education, rather than being detached from it as are most camping experiences which are not an established part of school programs. Furthermore, the teacher who has seen his class under new circumstances at camp can apply his new knowledge of his pupils on returning to the classroom. Thus he can help them to fix new modes

of behavior, new knowledge, and new interests through appropriate use in their usual community environment.
(9:119)

It would appear that the value and need for school camps is too great to be overlooked. Therefore, the schools have a responsibility to see that the needs are met, as suggested by Studebaker:

The future of camping education and outdoor experience in the elementary school program or at any level of school is primarily the responsibility of the school people. They must recognize the fact that there are many resources in the form of material, equipment, campsites, and persons who may be drawn upon, in making such a program a co-operative venture in community living.
(26:40)

Of course, there are some who would criticize the value of school camping, saying that it is a waste of taxpayers money or that it would only be a frill and has no place in the school. However, these remarks would generally be made by people who had never had the values pointed out to them or those who did not understand the interaction of this type of education with all of living. A vigorous program should be put into action whereby the values of camping would be made available to the entire community.

In concluding this review, the following quote expresses very ably the total values of school camping:

The school camp is a continuous part of the child's education, rather than something separate. He takes classroom-acquired experience and skills to camp and applies them to problem and real situations that are challenging both because they are new and because they involve the basic ends and means of living. Both

teachers and pupils share in the out-of-door life. Firsthand experience of nature can thus be woven into the fabric of knowledge when they return to the classroom. Knowledge acquired in camp thus becomes more meaningful and better understood and in turn illuminates much that is learned from books and other aids. Moreover, the transition from classroom to camp and back again helps to break down artificial partitions between schooling and living. Children begin to understand that the person who lives fully learns continuously, and that knowledge increases the range and completeness of satisfactions. (9:154)

CHAPTER III

A SUMMER CONSERVATION EDUCATION PROGRAM FOR INTERMEDIATE GRADE CHILDREN

INTRODUCTION

In this chapter, a plan for three weeks of concentrated classroom study has been developed. The method employed in this program was one whereby objectives that were considered essential for adequate development of the unit were ascertained from the literature, and then related learning situations were explained to develop those objectives. There are fifteen such lessons presented, each designed to last approximately four hours.

The idea of conservation and how resources are classified within such a study are introduced the first day. The next thirteen days are divided so that two days are set aside for soil study, three days for water, five for forestry and three for wildlife. These came from the objectives and were also derived from the literature. The fifteenth day provides time for evaluation and review, and preparation for the coming week's camping experience.

An additional five lessons formulate the conclusion of the program, the week at camp. Each of those lessons concentrates on one of the four areas mentioned above, with

allowances for campcraft skills, flag ceremonies, campfires, art projects, and organized physical activities.

It should be noted that the objectives are primarily teacher oriented. They were presented in this manner to give the teacher a definite objective for presenting each idea in every lesson. The learning activities are student oriented since they are the actual things the children will be doing to develop the generalizations within the objectives.

DAY I. INTRODUCTION TO CONSERVATION

Objectives

To show that man's welfare depends on the natural world around him.

To recognize the reasons for concern about the world's natural resources: population explosion, and increased consumption through industrialization.

To teach that conservation means: to sustain and increase the supply of resources we now need and will continue to need for generations to come.

To understand that the key to sound conservation practices is the interrelationships of living things with each other and with their physical environment.

To show that there are three main classifications of resources:

Learning Activities

Discuss, using question and answer method, how man's well-being depends on other living creatures, on water, on soil, on air and on mineral resources.

Continue discussion by comparing population rates of past years in different areas with those today. Try to have children tell what they think big industry is doing to the natural resources. Then draw out generalizations.

Write this definition on the board and let children tell what they think it means. Some may like to quickly sketch a picture showing the meaning. Be sure the vocabulary is understood first.

List all the ways that a particular resource depends on others for help in survival or keeping nature in balance. This will show how complete the interrelationships really are. If there is time, do this for several resources. Don't forget man's part.

Objectives

- a) inexhaustible, such as air, sunlight, water and rock;
- b) renewable, such as soil, vegetation, animal life, and fresh water;
- c) nonrenewable, such as coal, oil, natural gas, and minerals.

To show that an effective program requires careful planning, and to allow student participation in the planning.

To teach that record keeping is often a necessary part of a thorough study.
 To insist on a certain measure of discipline in learning in an informal situation.
 To make a quick, personal reference source available for each student.

To allow for individual differences and choices of specialized concentration.

Learning Activities

Play game of trying to classify a list of natural resources into their proper categories after discussion of the three terms. Let children check their lists together to be sure of complete understanding.

Go over general plans of entire conservation study. Talk over the many possibilities for what can be done during the classroom sessions and what is available at camp. Guide the planning but be flexible and listen to student suggestions, too.

Make record books to keep a list of generalizations formed from discussions, reports and displays, to record experiment results, to list new vocabulary, to write short reports of field trips, write poetry, sketch pictures, etc.

Arrange a plan for individualized reading and/or projects in any area of conservation each chooses to concentrate. Record readings and plan how to best share the information with the class (reports, displays, experiments, etc.).

Objectives

To allow an opportunity for creative expression through art.

To sing for enjoyment and to learn special camping songs not otherwise taught in the regular school music curriculum.

To provide a physical activity which teaches rhythmic co-ordination.

To develop correct safety habits in using jackknives in order to prepare for camping.

Learning Activities

Make decorative covers for record books. (An attractive notebook may encourage neatness.)

Learn some camping songs and rounds.

Work out some rhythmic patterns and demonstrate stick dancing (dancing to rhythms while moving back and forth between two long poles that are keeping the rhythms by being tapped alternately on the ground and then together). Encourage every child to try both handling the sticks and dancing in and out of them.

Learn how to handle and care for jackknives properly. Make a toasting stick for future outdoor cooking.

DAY II. SOIL

WHAT IS SOIL AND WHY IS IT IMPORTANT?

Objectives

To realize that soil is the primary source of our food, clothing, and shelter.

To show that soils are mixtures of interacting gasses, water, minerals, plant and animal organisms, and non-living organic materials.

To show that bedrock is the parent material for all soil.

Learning Activities

Read "Soil Means Life" pamphlet together. Discuss what the title means and why. (How does soil become our primary source of food, clothing and shelter?)

Make soil artificially in the following ways:

- a) rub two pieces of limestone together;
- b) expand and contract pieces of limestone by heating and cooling them quickly;
- c) freeze water in a small jar and observe how jar cracks;
- d) heat limestone in vinegar to show affect of chemicals on rocks.

Interpret results in each experiment and compare to similar results with natural forces working on rocks. (These experiments could be a possible individual project for a student.)

Dig up a square foot of soil about six inches deep from a reasonably undisturbed area and place on large paper. Observe all the living and non-living organisms in it and try to tell how they help make up the soil. Replace the soil when finished with observations.

Objectives

To observe that soil serves as a medium for anchoring plant roots, supplying water, providing air for roots, furnishing minerals for plant nutrients.

To show that there are many types of soil and that they should be used according to their capabilities and treated according to their needs.

To provide some creative activity that will also help stimulate student interest in experiments.

To keep record books up to date, and to reinforce learnings.

To provide creative activity for students not involved in building bulletin board, and to finish preparing sticks for stick dancing.

Learning Activities

Look at a potted plant or a garden plant and think of all the purposes that soil serves for that plant. (Could plants grow in air or water for long periods without soil or other special nutrients?)

Bring in a resource person from the Soil Conservation Department to show and tell about types of soil and what each is best suited for.

Experiment with soils to see how fast they absorb water and how much water they will hold. Plant bean seeds in different soil types and observe their growth over the three week period.

Construct a bulletin board about soils. Use any information gained from class discussions and experiments. Reserve a corner for recording experiment results.

Record important information from the day's study in notebooks. Write up brief accounts of experiments. Include new vocabulary.

Sand poles and decorate with a chosen design. Shellac when ready.

Objectives

To develop a useful skill in self-preservation and in preparing for camp, and to provide needed physical activity.

Learning Activities

Learn how to use a compass. Go for walks in small groups and following compass directions listed for group. A recorder should write the street names, landmarks, etc. as the group goes to show how given compass directions correspond with actual route taken.

DAY III. SOIL

CONSERVATION OF SOIL

Objectives

To help students realize that much of the U.S. topsoil has been lost through unwise use and practices.

To show that topsoil is less erodable than subsoil.

To observe that when water washed away the topsoil, the land is no longer good for farming.

To show that roots form a network which prevents the soil from being washed away.

Learning Activities

Finish pamphlet, "Soil Means Life," conservation section. What are the problems in trying to save the soil and make it produce as much as possible at the same time? List as many problems as possible. See filmstrip, "Saving the Soil," or film, "World at Your Feet." Now write solutions for problems listed before film. Also tell who can help conserve soil and how.

Compare topsoil and subsoil in texture, look, ability to absorb water, etc. Observe results in experimenting with both types. Why should we try to save our topsoil?

Try planting bean seeds in both topsoil and subsoil. Compare growth and draw conclusions about soils.

Study soil that is barren and some that is full of tiny roots. How do the roots help prevent erosion when water is run over both types of soil?

Objectives

To demonstrate that soil can be conserved and maintained at its fertility level by proper treatment such as the following:

- a) rotation of crops and addition of fertilizers;
- b) letting soil "rest," as people do;
- c) protecting soil from erosion with crop cover when not in use;
- d) helping the soil absorb water by adding mulch so that the water won't run off too quickly;
- e) using contour farming on sloping land.

To perform a service to the school, and provide some physical activity in program plans, while applying a theory in conservation.

To gain some useful knowledge of wild edible foods, and add to self-preservation skills in preparation for camp.

Learning Activities

Perhaps an individual report about soils and experiments to demonstrate causes of erosion will be ready. Use as a base for learning how to conserve soil. Nearly every resource book about soil has ideas for setting up such experiments. Read sections aloud to class from Pearl Buck's, The Good Earth, to illustrate the severe problems in China concerning poor, worn out soils, drought conditions, lack of good fertilization. Compare this with the plentiful supply of good soil in our own country and think of what could happen if people don't take care of our soils.

Ask janitor to save lawn clippings so students can work them into the soil as mulch around shrubs on the school ground.

Ask a naturalist to come to class prepared to discuss and share some samples of wild edible foods found in surrounding camping areas.

DAY IV. WATER

HOW IS WATER IMPORTANT TO US?

Objectives

To review and understand how water can be classified as an inexhaustible resource, and to discover that water never stops traveling (water-cycle).

To show why water is essential to all life, and to recognize how the demand for it has grown, while the supply has remained constant.

To especially point out the vital and interesting activities locally due to our plentiful supply of water such as:

- a) recreation,
- b) transportation,
- c) irrigation, and
- d) hydro-electric power.

Learning Activities

Make a large diagram of the water-cycle, letting each student draw and label some part of it. Let several students take a turn explaining it.

Conduct experiments to demonstrate evaporation, condensation, and precipitation.

Show film, "Water, Fountain of Life," which illustrates the water-cycle, uses of water, percentage of water in living things. Discuss. Decide why water is absolutely necessary for life. Make a list of the number of times a day that students use water and the purpose of the use. Think of ways water is used in farming and in industry locally and around the state. If water is an inexhaustible resource, why is the supply insufficient in some areas?

Encourage students to tell stories of their personal experiences at water recreation sites. They may like to illustrate their stories with drawings. Compare desert qualities of our area with irrigated portions. Where does our electric power come from locally?

ObjectivesLearning Activities

(continued)

If individual students have prepared reports dealing with dams in the area, they could be easily fitted in at this point of the study.

To reinforce learnings and keep the accounts up to date.

Add new information and vocabulary to notebooks. draw small diagrams of the water-cycle also for future reference.

To allow for individual differences and concentration of studies.

Provide time for individual reading and project work.

To add physical activity to the program and review rhythmic patterns for stick dancing.

Review stick dancing and practice rhythmic patterns.

To sing for enjoyment.

Learn some new camp songs dealing especially with water.

To add to self-preservation skills and to learn how to be sure of drinking only safe water in the wilderness.

Discuss where to find safe drinking water when camping. Help students discover why it is unsafe to drink contaminated water and where the contamination comes from. Demonstrate how to purify water by boiling or adding chemicals. Encourage students to taste the treated water.

DAY V. WATER

WHERE DOES WATER COME FROM?

ObjectivesLearning Activities

To review previous learnings and strengthen understanding.

Review water-cycle by letting several children draw and label once more. Also review vocabulary related to it.

To show that there is a water table which indicates whether water is above or below the ground surface.

Draw a diagram to show how the water table would look in a cross section of the earth. Label lakes, swamps, rivers, oceans, and wherever the water table reaches surface level or goes above it.

To observe that water in local areas comes from two sources: wells and rivers.

Discuss the water supply sources for the local area and show on the water table diagram where this water would come from. Taste water from both sources and compare. Add equal amounts of soap to both kinds and compare results. What does "hard" and "soft" water mean?

River water must be filtered and treated before it is ready for human use.

Visit the local water works to see how the water is prepared for city consumption. Follow up in classroom will be next lesson.

To provide some recreational activity.

Go to local park for picnic lunch and swimming.

Objectives

To see what treatment is necessary for adequate sewage disposal.

Learning Activities

Visit local sewage disposal plant. Observe how it is helping to control water pollution and protecting local citizens from disease. Follow up activities will be included in next lesson.

DAY VI. WATER

WATER PROBLEMS AND CONSERVATION

Objectives

To review fieldtrips and help children interpret what they saw.

To explain that mankind and his needs determine our water problems, and that such needs have often resulted in severe pollution of water or shortage of water in some areas.

Learning Activities

Begin with a quick quiz about the water works and sewage disposal plants, how they work and what purpose they serve in the community. Use as a basis for discussion and note how each operation is there to protect each child in the classroom so he can relate these services to himself. Imagine together what would happen if we did not have these services within the community.

Read aloud to the class, "Our Dying Waters" from The Saturday Evening Post, April 23, 1966, and discuss this very interesting presentation of water problems facing the U.S. and what has caused them. Think of ways in which industries and individuals can help prevent water pollution, thereby keeping water safe for all living things. Conduct a class debate on whether or not a state should share its water resources with another state which needs more water than it has.

Objectives

To point out that water conservation includes:

- a) improving drainage;
- b) preventing pollution from industrial and human use;
- c) controlling rivers to prevent flooding;
- d) careful planning for and construction of dams and reservoirs;
- e) having fresh water at the right place at the right time.

To provide for individual creative expression through art by letting children show what good and bad water conservation practices look like to them.

To sing for enjoyment.

Learning Activities

Set up an experiment showing drainage that is too fast, about right, and too slow. Observe over about two weeks of time, watering all three everyday.

Show film, "The Great River" about the Columbia and Coulee Dam. How do dams effect flood control, irrigation, and provide recreation and power?

(Points (b) and (e) have been covered in activities earlier in this lesson.

Paint a mural, showing good water conservation in one half and the results of poor conservation and water pollution in the other half.

Learn rounds and action songs.

DAY VII. FORESTS

WHY ARE FORESTS IMPORTANT?

Objectives

To show that forests provide cover for wildlife as well as food and protection, and that animals contribute to the well-being of the forest. There is similar interaction between the forests and air, water, and soil.

To recognize America's growing need for forest products such as foods, shelter, clothing, furniture. Because of this need, the forests supply materials for many jobs.

To remind students that forests provide a special form of outdoor recreation plus a quiet, shady place to relax and enjoy nature.

To keep a record of the learnings for the day.

Learning Activities

Divide class into four committees to do short research from class resource books about interaction of forests with wildlife, air, water, and soil. Use the findings for class panel discussions.

Set up a display showing as many different forest products as possible in pictures and drawings, with brief captions explaining what part the forest played in providing each product. The boys might prefer finding information about job possibilities connected with forests and sketch men at work for the display.

Encourage children to share experiences with the class about going to the mountains and what sort of special fun or enjoyment they had there. Could they have enjoyed the same activities outside the forest?

List new information and vocabulary in notebooks.

Objectives

To learn some folk dances well enough so that they can be done for enjoyment and recreation at camp.

To provide for individual preferences in reading.

To make a useful and safe item for carrying a jack-knife, compass, small flashlight, etc.

Learning Activities

Practice round and square dancing.

Allow time for individual reading and project work.

Braid lanyards, being sure that they are long enough to hang around the neck easily.

DAY VIII. FORESTS

FIELDTRIP TO LUMBER MILL AND PLYWOOD FACTORY

Objectives

To review the growing need in America for forest products and what some of those products are.

To know what to look for, ask intelligent questions about, and have a better understanding of the operation of a lumber mill and plywood factory.

To remind children what is expected of them on the fieldtrip in regard to behavior and special precautions that need to be taken in a potentially dangerous area such as a mill.

To see what answers were found to written questions and review the trip. To check on accuracy of information previously gathered in learning about forest products, jobs provided by forests, etc.

Learning Activities

Quickly glance back through record books and survey the class display to find information about forest products and jobs. What are some of the questions the students have that they would like to find answers to?

Prepare written questions and let each child be responsible for getting the information to answer one of them.

Review good manners so that children can have a good feeling about themselves in this situation. Discuss possible dangers and how to avoid any accidents.

Let children take turns sharing their new information with the class. Compare observations with information found previously to see if it was correct.

Objectives

To teach children how to handle basic woodworking tools such as hammer, nails and saw, and try their hand at making some object out of wood.

To sing for enjoyment.

To allow time for work on individual readings and projects.

Learning Activities

Bring back scrap lumber from mill for woodworking project. Demonstrate how to use tools safely, and let each child do as he chooses with his share of lumber.

Learn new camping songs, especially about trees.

Allow time for individual reading.

DAY IX. FORESTS

HOW A TREE GROWS

Objectives

To teach the children the main parts of a tree and how a tree grows.

To help children realize that many years are needed for a forest of trees to grow into maturity.

To reinforce learnings.

To provide time for completion of art projects.

Learning Activities

Show film, "A Tree is Born." Find out what happens inside a tree from the time it is a seed until it reaches maturity. How many years are necessary for this growth process?
With so much new and detailed information, the film might need a second showing after a question and answer period. Draw diagrams of: 1) cross sections of tree trunk and label parts; 2) parts of a flower and label; 3) process of photosynthesis. These diagrams can be made large enough for permanent class display.
Set up some long-term experiments dealing with photosynthesis.

After studying the growth process and finding how long one tree needs to grow from a seedling to lumbering size, discuss how long it would take for a forest to develop from that one tree.

Add new information and vocabulary to notebooks.

Finish lanyard braiding and/or carpentry projects.

Objectives

To provide training in the proper way to build, care for and extinguish a fire in preparation for camping.

Learning Activities

Practice, outside, preparing materials for fires, lighting them, and finally putting them "dead out." Learn the kinds of material necessary for fire building. Also know what equipment should be on hand in case a fire would get out of control.

DAY X. FORESTS

TREE AND PLANT IDENTIFICATION

Objectives

To show that there are thousands of plants in the forests, and while most are useful, some are harmful or poisonous.

To show that trees belong to families that have certain individual characteristics and that due to their differences, each kind of tree can be best used for certain things.

To provide some variety and physical activity.

To locate major forests in the U.S. and identify trees.

Learning Activities

Using the overhead projector, show pictures of common plants found in wild, uncultivated areas and discuss what animals need them for. Recall how they protect the soil from eroding. Have a serious discussion about poison ivy, oak, and sumac, and the discomforts they can cause. What are some ways of treating the skin rashes they cause? Help children learn to recognize them.

Using the overhead projector, show transparencies of trees common to the area and point out characteristics peculiar to each. Students should sketch the tree shape, an individual leaf or branch of needles, its flower or cone, fruit, and describe its bark and size. This will help in actual identification of trees at camp. Next, try to find its best uses.

Learn and practice new folk dances.

Draw maps, designating and identifying major U.S. forest areas.

Objectives

To provide different materials for artistic expression and to relate these natural materials to the particular area of study.

To allow for individual reading.

To learn the elementary procedures in applying first aid and how to use a simple first aid kit, in preparation for camping.

Learning Activities

Make seed mosaics on pieces of wood.

Provide time for individual reading and projects.

Learn basic first aid from a trained first aider. Also display a simple first aid kit and show how each item is used.

DAY XI. FORESTS

FOREST PROBLEMS AND CONSERVATION MEASURES

Objectives

To discover that the forests have many enemies: man is the chief one; others are fire, insects, disease, and wind, and sometimes wildlife.

To examine what is included in conservation measures for forests.

To show the excellent qualifications of forest service personnel by learning about their professional training.

Learning Activities

Read aloud from available classroom resources such as "It's a Tree Country" or "The Forest Adventures of Mark Edwards" to discover what the forest enemies are.

With the help of resource books or a representative of the forest service or private industry dealing directly with forestry, list ways that forests are being protected and saved from destruction by man and natural forces. Find out what is being done about new ways to combat fires, harmful insects, tree diseases, and about careful lumbering methods, re-forestation, and establishment of national and state forests. Why should timber be cultivated like a crop?

This information can be found in resource books, and perhaps one of the students will make a report on it. The resource person who comes for the previous activity could also provide this information.

Objectives

To help children recognize their own personal responsibilities in caring for the forests.

To finish projects already started.

To provide some physical activity and variety in the program.

To become more proficient in first aid.

To allow for individual differences and time to finish preparing reports or projects.

Learning Activities

Let children suggest ways they can help protect forests themselves by putting their ideas into the form of conservation posters. These could perhaps be posted around the community or at camp.

Finish seed mosaics.

Run a variety of relays, dividing into new teams periodically.

Practice basic first aid principles learned the previous day. Review proper treatments for minor injuries, bites, burns, etc.

Provide time for individual reading and project work.

DAY XII. WILDLIFE

WILDLIFE NEEDS AND PROBLEMS

Objectives

To discover that wildlife need the same essentials for maintaining life as humans: food, water, and shelter.

To observe the "give and take" relationship between wildlife and its environment.

To learn why most animals die before the age of one year.

To keep notebooks up to date and re-emphasize learnings.

Learning Activities

First of all, determine human needs for life. Now apply to wildlife. Show how certain areas of wilderness support only certain kinds of wildlife due to the kind of essentials it can offer to animals.

Show film, "Web of Life." Afterwards, draw a diagram showing the cycle of "give and take" of animals and specific elements of their environment; list animals that seem to harm their environment, and those that appear to be helpful.

Put terms: starvation, disease, predators, and accidents on board. Let children discover how each term refers to a wildlife enemy, and how they affect particular animals. Some individual reports will probably include this information, thus supplying specific details for certain animals.

Add new information and vocabulary to notebooks.

Objectives

To give students an opportunity to use their imaginations and gain insight about their true feelings toward certain animals.

To provide an opportunity for service to the animal world, as well as expressing one's self creatively.

To sing for enjoyment.

To learn some basics about outdoor cookery, and be better able to plan for outdoor cooking menus.

Learning Activities

Suggest that students write stories about the day in the life of any animal they choose. Allow time for reading the stories later if the children want to share them. Discuss them and try to determine if the information in the story is accurate.

Provide materials to make bird houses, feeding stations or bird baths. Try to find good outdoor locations for them when they are finished.

Learn camping songs dealing especially with animals.

Have experienced Boy and Girl Scout troops demonstrate some simple outdoor cookery and prepare lunch for the class. Since the cooking will be going on over a period of time, it will need to be observed in stages. Then each process can be quickly summarized when the cooking is finished. Choose two forms of cookery and plan what the class could cook for lunch the following day.

DAY XIII. WILDLIFE

WHY IS WILDLIFE IMPORTANT TO US?

Objectives

To recognize that wildlife, in its natural setting, provides an important part of outdoor recreation and enjoyment.

To learn how wildlife provides food and clothing for people in various parts of the world; to realize that wildlife products also produce jobs.

To provide time for listening to reports of individual reading.

To listen for enjoyment and to understand how others see animals and what they mean to different people.

Learning Activities

Let children share their personal experiences with the class about observing animals in their natural environments, or hunting and fishing. Could such activities have been possible without the wildlife?

Divide the U.S. into regions and add countries representative of sections of the world. Let children choose the areas they are interested in. Supply magazines for cutting pictures, and suggest referring to resource books in the room for finding additional information on how man depends on wildlife in his area. Make one large class display of the pictures.

Since most reports will probably be about animals, plenty of time should be allowed these last days for reports.

Read aloud to class animal poetry such as "Kangaroo" by Kipling; "The Eagle" by Tennyson; many poems are available.

Objectives

To strengthen firebuilding skills and practice one or two forms of cookery observed the previous day.

To evaluate cooking and plan some menus for three meals to cook outdoors at camp.

To finish art projects started through the study.

Learning Activities

Taking turns in shifts, build fires and care for them until ready for cooking. Then prepare lunch as planned the day before.

Discuss what children liked about the forms of cookery tried, and the results of the cooking; decide what is necessary for an adequate but simple meal. (Basic Four food groups) Plan meals.

Finish any art projects, displays, etc.

DAY XIV. WILDLIFE

WILDLIFE CONSERVATION

Objectives

To recall that man is one of wildlife's chief enemies, and that some animals have become extinct through man's carelessness.

To show that hunting is harvesting in that some animals need protection so they won't die out, but others need to be controlled in number in order to preserve nature's balance.

To examine some of the national and state laws that protect wildlife, and learn about refuges and sanctuaries.

Learning Activities

Present to the class a list of animals which are extinct or nearly so. Try to determine reasons for extinction. Bring out the point that man often causes imbalance in nature.

Have a member of the National Wildlife Service come to class and discuss wildlife management, explaining the need to protect some animals in certain areas and the need to control animal population. Again point out how nature balances itself when allowed to progress without human interference, so man must study carefully the results of his activities before proceeding, in order to avoid upsetting the balance.

Supply each member with a copy of the state hunting and fishing laws. Why do the dates and number of days differ for different animals? Why is it unlawful to kill some female animals? What information would be necessary before such laws could be intelligently made? Why might the laws be changed?

ObjectivesLearning Activities

Find articles about wildlife refuges, sanctuaries, and feeding ranges. Let children give individual reports about such places to provide the class with related information.

To relate previously learned information to that of this lesson.

To learn to share information and accept constructive criticism from others, without feeling unworthy.

To be able to think critically and give constructive ideas.

Refer to lists of animals made on Day XII that show what animals are harmful and which ones help their environment. Let each student read their lists and have the rest of the class try to determine ways in which each animal contributes to the balance of nature, thus proving their necessity.

To keep record books up to date.

Record ideas and factual material in notebooks.

To complete all projects and summarize experiments.

Allow time for finishing project reports, making final recording of experiments, etc.

DAY XV. CONCLUDING CLASSROOM DAY

Objectives

To re-emphasize that planning is absolutely necessary for any project. For camping, such planning includes deciding on menus and food, clothing that is proper and adequate, equipment needed, and emergency supplies.

To give students a voice in the camp planning so they will feel an important part of the entire experience.

To show that group living requires certain individual responsibilities to one's self and to the group as a whole.

To allow for creative expression in the form of dramatics, or role acting.

Learning Activities

Describe two camping trips briefly, obviously exposing the poor planning of one and the unhappy results from it, and showing the exact opposite experiences for the person going on a well-planned trip. After the class compares the two and recognizes the value of adequate planning, make a list of necessary equipment and clothing they will be expected to take with them to camp. Make mimeographed lists for all students.

Describe on paper situations that may well arise at camp. Divide class into small groups and let each draw an equal number of slips. Each group should think of a right and wrong way to handle the situation and then act them out. The situations can be built around specific individual responsibilities (such as brushing teeth when it is time); responsibilities to the group (such as keeping one's own clothes and gear put away when not in use); and with emergency situations (such as getting lost in the woods, putting out a fire on someone's clothes).

Objectives

To evaluate the three weeks of conservation education and review learnings.

Learning Activities

Encourage each child to tell what he liked best about the study and/or what he did not like and why. This should not be a quiz, but hopefully a fun way to review and prepare for the coming week of camping.

DAY I. CAMP

WILDLIFE

ObjectivesLearning Activities

To observe operation of a fish hatchery and understand its purpose and value to conservation of wildlife.

Stop at fish hatchery on way to campsite to see how fish are conserved and given maximum opportunity to grow and reproduce in great quantity.

To see a local feeding range for large game, and understand its part in conserving wildlife.

Visit the near-by game feeding range also on the way to camp to learn how animals are cared for when food is scarce.

To learn identifying characteristics of animals.

At camp, have ranger display and tell about animal pelts, snakes, insects, and birds common to the campsite or surrounding area. Observe size and markings of each so that later they can be identified if seen.

To learn that every animal has identifiable tracks, and they can be studied and preserved without disturbing the ground around them.

Go on a hike to look for tracks (best place is often in mud around drinking places). Make plaster casts of the tracks and bring back to camp to secure identification.

To experience what the animals and their surroundings actually are for the area. To see what they eat, what type of cover there is, and possibly find homes.

While on hike, look for animal homes, signs of activity, and kind of cover that supports the animals in the area.

DAY II. CAMP

WATER

ObjectivesLearning Activities

To observe water uses by nature and humans within camp area.

Make observation tour of ways water is used in the camp area. Compare with list of domestic and industrial uses made in earlier water studies.

To examine watersheds in area and understand how a watershed works and why good drainage is necessary.

On tour, have resource person point out watersheds and determine where water eventually flows. Look for examples where too fast drainage has caused erosion. With the help of the forest service personnel, determine what class members could do to prevent further erosion.

To observe what happens when a dam is built across a stream such as that of beavers, and to apply simple theories to what happens when large dams are built on rivers for human purposes.

With permission from forest service staff, build a small dam across a stream and observe what happens over a period of a day or two. Then return stream to original state. Apply what has been observed to large dam construction on rivers.

To use water in proper way for safe recreation.

Meet with water safety instructor for learning safe swimming rules for camp. Swim for fun.

DAY III. CAMP

SOIL

Objectives

To observe layers of soil as they actually are in an uncultivated area.

To observe how "alive" soil is, especially in the forest areas where land remains undisturbed.

To understand that when something dies in nature, it returns to the soil the nutrients that have been taken out long ago.

To find natural resources that can provide materials for art and craft projects.

Learning Activities

Dig a soil pit on a hillside approximately four feet deep by six to eight feet wide. Observe the layers of undisturbed soil; notice how plant roots are anchored in the soil and how they in turn prevent the erosion of the soil under natural conditions.

When digging the soil pit, put soil being removed on large sheets of plain paper. Let children count the number of living things on each piece of paper within the soil. How do these living things contribute to the well-being of the soil?

Observe decaying matter in the soil also. What does the matter contribute to the soil?

Locate some natural clay and prepare for use in modeling or sculpture. Try sand casting, using sandy soil, natural objects and plaster.

DAY IV. CAMP

FORESTS

ObjectivesLearning Activities

To identify trees, using the knowledge from earlier lesson in forestry where trees were studied for their peculiar characteristics by looking at pictures.

Place numbered tags on a number of trees in the area. Students should be able to identify the trees from their notes and sketches in record books. Have them make a list of these identified trees and turn in for checking.

To understand how trees are planted for a future timber crop.

Ask forest service member to demonstrate how a tree is planted, and explain why certain procedures are followed. Then in a designated area, let children plant several trees for their own special forest. They might even be tagged for future identification as to when and what class planted which trees.

To see what diseased trees look like and realize that disease can spread among trees and eventually kill great numbers of trees unless kept in check.

Point out examples of sick trees and ask forest service member to tell what has happened to them. Discuss what would happen if the disease were allowed to continue unchecked.

To see actual fire-fighting equipment and how it is used in the forest.

Have ranger demonstrate various tools needed for fire-fighting. Compare with city equipment and note differences.

Objectives

To learn how trees can be studied for age, growth and other things within the tree without cutting down the tree.

To learn how to measure the height of trees to determine the amount of lumber in a particular tree.

To gain appreciation for the beauty of nature, and how to gather samples of living things (with permission) without damaging any plants or the general beauty of the area.

Learning Activities

Ask ranger to demonstrate the increment borer and explain the core that is removed from the tree. Under supervision, let each child use the tool to remove a core. Then mount the core on a card, label its parts (sapwood, springwood, summerwood, cambial layer, etc.), and determine the tree's age.

The formula for this process should be mimeographed ahead of time for distribution at this time. Use the formula for figuring the size of several trees designated around the camp area. Compare answers and go over the problems so that students understand how the correct answer was arrived at.

With permission, gather natural materials for making nature collages. Show students how to gather materials by scattering out to find them over a large area rather than intensively stripping a small area of all its seeds, leaves, etc.

DAY V. CAMP

EVALUATION AND CLEAN-UP

Objectives

To evaluate the entire conservation program.

To realize that part of any camping experience is cleaning up the entire area used by the campers, so as to leave a clean area for the next campers and to remove any items that could possibly be harmful to the natural surroundings.

To help each child learn the responsibility of taking care of their own belongings and have them together for taking home.

Learning Activities

Ask each student to prepare either a report or series of pictures showing how the conservation education program can help them personally conserve the four main resources studied. Share the writings or pictures with the rest of the class and discuss.

"Police" cabin and lodge areas, cleaning up all debris, clothes, equipment, and study materials. Stand inspection before leaving to police grounds. Every bit of camp area used should be scoured for papers, lost articles, etc. A clean campsite is a practical application of good conservation.

CHAPTER IV

SUMMARY

The purpose for writing this thesis was to investigate the area of conservation education. From this investigation, a possible model conservation education program has been developed for intermediate grade children.

The review of literature was an attempt to first, establish a need for conservation of our outdoor natural resources. This was done by citing the results of various poor conservation practices in respect to soil, water, forestry, and wildlife. A second section reviewed the value and need for conservation education in our schools. The writer found many authorities who agree that conservation education should be a part of the school curriculum. The concluding portion of Chapter II dealt with the value and need for school camping. This review was necessary for preparing the one week camping program which is the culminating activity in the program developed in Chapter III.

In designing the program for Chapter III, the writer limited the study to the areas of soil, water, forestry, and wildlife. As has been pointed out, this should not be interpreted to mean that other areas of conservation are unimportant. Most literature on conservation, however, deals with those four particular areas, and they are the

ones in which students can have direct experiences.

Many opportunities were found for using experiments in the soil study, such as testing different types of soils to observe how fast they absorb water, how much water they hold, etc. There were guided discussions to cover the important generalization that soil is the primary source of food, clothing and shelter. After discovering what soil is and why it is important, the section was concluded by examining good soil conservation practices through the use of a film and more experiments.

The second major area of study was water due to its especially close relationship with soil. Experiments which developed the processes of evaporation, condensation, and precipitation were useful in explaining the water-cycle. Fieldtrips were planned to give a good understanding of the operations involved in making water ready for human consumption, as well as the communities' responsibilities in sewage disposal.

Discussions and committee reports helped develop the reasoning that forests are very important to man. A field-trip was planned for children to actually see lumber being produced and some of the jobs provided by the forest industry. By using a film and diagrams, factual information about the parts of a tree and how it grows was explained. Tree and plant identification was presented through overhead projec-

tions of plants and trees common to the surrounding areas. The children could sketch or describe the characteristics which would help them make real identifications at camp or out in the forests. The study of forests was ended by presenting to the class, through individual reports, a film, and discussions, what the enemies of the forest are and the conservation measures that are needed.

Because of the intense interest children generally have for wild animals, great allowance was made for many anticipated individual reports. Games, imaginative stories, picture displays and discussion groups were employed to expand the ideas of wildlife needs, problems, and protection. Likewise, the study tried to explain how wildlife and its by-products provide man with food, clothing, and shelter in many parts of the world, as well as a form of outdoor recreation and enjoyment.

It seemed unrealistic to design a four-hour, daily program for intermediate grade students that concentrated solely on conservation learnings. Therefore, other activities such as singing, folk dancing, relays, swimming, drawing, painting, and woodworking were included to add variety and enjoyment, provide some physical activity, and offer opportunity for creative expression.

CONCLUSIONS

As a result of this study, the writer has made several observations. It was found that there are many adequate materials attainable for the conservation program at the intermediate level. Especially helpful are the various publications put out by the U.S. Department of Agriculture, U.S. Forest Service, Industrial Forestry Association, American Forest Products Industries, and The Garden Club of America. Most of them are free and will be supplied in classroom quantities upon request. Because of the accessibility to so many interesting materials, the writer decided it would not be necessary to use a basic text for this study.

Another finding was that there are a large number of films that can be used for conservation study. The U.S. Department of Agriculture will furnish conservation film lists upon request and local film libraries have sponsored film lists from private industry. Audio-visual materials from Educational Media Incorporated in Ellensburg are also excellent; a number of 8mm loop films, filmstrips, and transparencies are available in many areas of conservation.

Also, there are many pamphlets which describe motivating classroom experiments. One of these is the outstanding booklet on soil and water, "Teaching Soil and Water Conserva-

tion," prepared by the U.S. Department of Agriculture.

One of the most important discoveries made by the writer was the number of fieldtrips and resource people available for classroom conservation education. It would seem that conservation is an important program within the community, and the people involved are anxious to help children understand the importance of good conservation practices.

In conclusion, the writer would like to make the following recommendations:

1. that this program be tried;
2. that this program evolve into an annual experience at every intermediate grade level with gradually more complex learnings and expanded areas of study;
3. that possibly more pre-camping days be allowed for developing objectives to ensure that all information is thoroughly presented;
4. that one day following the camping experience be reserved for evaluation so that the time spent at camp can be exclusively used for outdoor learning.

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